

What Is Claimed Is:

1. A method of exchanging data between at least two users that are interconnected over a bus system, the data being contained in messages transmitted by the users over the bus system, the method comprising the steps of:

transmitting the data as event-oriented data over the bus system, as long as a preselectable latency elapsing between a transmission request by one of the users and an effected transmission operation of the one of the users is ensured for each message to be transmitted, as a function of a capacity utilization of the bus system; and

if the preselectable latency elapsing between the transmission request by the one of the users and the effected transmission operation of the one of the users is not ensured for each message to be transmitted, transmitting the data over the bus system according to a deterministic operation.

2. The method according to claim 1, further comprising the step of:  
monitoring the capacity utilization over time, wherein:

the preselectable latency cannot be ensured for each message to be transmitted if an uninterrupted utilization of the bus system over time exceeds a preselectable time threshold.

3. The method according to claim 1, further comprising the step of:  
monitoring the capacity utilization, wherein:

the preselectable latency cannot be ensured for each message to be transmitted if a number of messages transmitted in direct succession over the bus system exceeds a preselectable threshold.

4. The method according to claim 3, further comprising the steps of:  
counting by the user the messages transmitted in direct succession from the one of the users over the bus system; and

transmitting a current number of the messages in direct succession over the bus system to others of the users.

5. The method according to claim 4, wherein:  
the current number of the messages being transmitted in direct succession in one of a cyclic redundancy check and another checksum is included in a count produced by the counting to ensure a data content of one of the messages and is transmitted together with the one of the messages.
6. The method according to claim 5, further comprising the step of:  
jointly forming the one of the cyclic redundancy check and the other checksum from the data content of the one of the messages and the current number of the messages being transmitted in direct succession.
7. The method according to claim 1, further comprising the step of:  
switching from the deterministic operation over the bus system to an event-oriented transmission when a predetermined end of the deterministic operation is reached.
8. The method according to claim 1, further comprising the step of:  
transmitting the data transmitted according to the deterministic operation in a time-triggered manner.
9. The method according to claim 8, wherein:  
the time-triggered manner corresponds to a time-division multiple-access (TDMA)-based operation.
10. The method according to claim 1, further comprising the step of:  
transmitting the data transmitted according to the deterministic operation with dynamically variable priorities of one of the messages and message groups on a priority shift basis.
11. A communication system, comprising:  
at least two users;  
a bus system over which the at least two users are interconnected for exchanging data among the at least two users, the data being contained in messages transmittable from the at least two users over the bus system;

an arrangement for monitoring a capacity utilization of the bus system;  
an arrangement for performing an event-oriented transmission of the data over the bus system;  
an arrangement for performing a deterministic transmission of the data over the bus system; and  
an arrangement for selecting one of the event-oriented transmission and the deterministic transmission, wherein:

the arrangement for selecting selects the event-oriented transmission, as long as a preselectable latency elapsing between a transmission request by one of the at least two users and an effected transmission operation on the part of the one of the at least two users is able to be ensured as a function of the capacity utilization of the bus system for each message to be transmitted, and

the arrangement for selecting selects the deterministic transmission if the preselectable latency elapsing between the transmission request by the one of the at least two users and the effected transmission operation of the one of the at least two users is not ensured for each message to be transmitted.

12. A memory element of a communication system for one of a plurality of users, the communication system being connected to at least another of the plurality of users over a bus system for an exchange of data, the memory element storing a program that is able to run on a computer of the one of the plurality of users , the program causing the computer to perform the steps of:

transmitting the data as event-oriented data over the bus system, as long as a preselectable latency elapsing between a transmission request by the one of the plurality of users and an effected transmission operation of the one of the plurality of users is ensured for each message to be transmitted, as a function of a capacity utilization of the bus system; and

if the preselectable latency elapsing between the transmission request by the one of the plurality of users and the effected transmission operation of the one of the plurality of users is not ensured for each message to be transmitted, transmitting the data over the bus system according to a deterministic operation.

13. The memory element according to claim 12, wherein:  
the memory element includes one of a read-only memory, a random-access memory, and a flash memory
14. The memory element according to claim 12, wherein:  
the computer includes a microprocessor.
15. A computer program for causing a computer to perform the steps of:  
transmitting data as event-oriented data over a bus system, as long as a preselectable latency elapsing between a transmission request by one of a plurality of users and an effected transmission operation of the one of the plurality of users is ensured for each message to be transmitted, as a function of a capacity utilization of the bus system; and  
if the preselectable latency elapsing between the transmission request by the one of the plurality of users and the effected transmission operation of the one of the plurality of users is not ensured for each message to be transmitted, transmitting the data over the bus system according to a deterministic operation
16. The computer program according to claim 15, wherein:  
the computer includes a microprocessor.
17. The computer program according to claim 15, wherein:  
the computer program is stored on a memory element.
18. The computer program according to claim 17, wherein:  
the memory element includes a flash memory.